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REMARKS

Claims 1-29, 37, 38, 40-44, and 46 are pending in the application with claims 1, 9, 15, 27, and 41 amended, new claim 46 added, and claim 45 cancelled herein. Applicant expresses appreciation for the interview conducted between Applicant's attorney James Lake and Examiner Zervigon on August 3, 2005. Applicant requested removal of the finality of the Office Action mailed July 26, 2005 to allow the Applicant to respond to new grounds of rejection that were not prompted by Applicant's prior amendment in the Response to December 21, 2004 Office Action. Examiner Zervigon agreed to withdraw the finality and provided the present Office Action.

Claim 44 stands rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement and the specification is objected to as allegedly adding related new matter. Applicant requests reconsideration. In the Response to December 21, 2004 Office Action, wherein Applicant added the alleged new matter, page 11 of the Response asserts that the amendment is not new matter since it merely describes conventional subject matter known to those of ordinary skill. Applicant's reasoning was explained in detail. Page 2 of the Office Action does not acknowledge Applicant's prior assertions nor provide any rebuttal. The Office Action concludes that the subject amendment added new matter without providing any reasoning in support of the conclusion. This is not appropriate given Applicant's prior assertions. Applicant thus incorporates by reference the previous assertions made on page 11 of the Response to December 21,

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2004 Office Action regarding the subject amendment not adding new matter and requests full and fair consideration of the subject prior to any final rejection.

Claims 41, 42, and 45 stand rejected under 35 U.S.C. 102(b) as anticipated by Posa (US Patent 4,747,367). Claim 43 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Posa in view of Fukui et al. Claim 44 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al in view of Jeong (US Patent 5,853,484). Applicant requests reconsideration.

Applicant herein replaces previous claim 45 with new claim 46 setting forth a CVD apparatus that includes, among other features, a deposition chamber defined in part by a cylindrical body and a single-piece removable lid, an opening completely through the lid, and a valve assembly to which the lid is integral. The general concept of a single-piece removable lid that is integral to a valve assembly is not disclosed in any of the cited references, considered alone or in combination.

In addition, claim 46 sets forth that the lid has a circumference corresponding to a shape and a size of the chamber body where it joins with the lid. The body size is selected to accommodate a semiconductor wafer during CVD when such wafer is parallel to the lid. The lid has an inner surface inside the chamber and an outer surface outside the chamber and has a thickness which is much less than a width of the lid and which is similar to a thickness of the body. The body and lid thicknesses are selected to

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accommodate pressures associated with atomic layer deposition. The opening is defined by sidewalls forming a part of the lid and extending between the inner and outer surfaces. The sidewalls have a shape that of itself defines a valve seat, the entirety of the valve seat being positioned between the inner and outer surfaces. The valve assembly is positioned to match a valve plug or diaphragm with the valve seat such that the valve assembly would be incomplete, nonfunctional, or otherwise not able to isolate chemical delivery from reaching the chamber absent the lid.

Accordingly, Applicant asserts that none of the cited references considered alone or in combination disclose or suggest the subject matter of claim 46 as a whole. Further, the art does not disclose the opening sidewalls forming a part of the lid and having a shape that of itself defines a valve seat, the entirety of which is positioned between the inner and outer surfaces. The structural features of claim 46 that integrate a deposition chamber lid of the type set forth in claim 46 into a valve assembly is not known in the art. Accordingly, Applicant requests allowance of claim 46 in the next Office Action.

Claim 41 is amended herein to incorporate subject matter that is also not disclosed or suggested in Posa, Fukui, or a combination of such references. Claims 41, 42, and 43 are thus patentable.

Claims 1, 2, 4-23, 25-29, and 45 stand rejected under 35 U.S.C. 102(b) as anticipated by Fukui et al (US Patent 5,002,928) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukui et al. Claims 3 and 37-40

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stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al.

Claim 24 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al in view of Waterfield (US Patent 4,319,737). Applicant requests reconsideration.

Amended claim 1 sets forth a CVD apparatus including, among other features, a valve body having an entirety of a seat within the chamber lid or body thickness between the innermost and outermost surfaces of the chamber lid or body, the seat forming a part of the chamber lid or body. The Office Action alleges that fence 14 of Fukui discloses the chamber lid or body, that wave sprayer 1 discloses the valve body, and that needle valve holder 7 discloses the seat. However, needle valve holder 7 does not form part of fence 14. Needle valve holder 7 and fence 14 are separate and distinct components of the Fukui apparatus. Accordingly, claim 1 along with claims 2-8 and 37 depending therefrom are patentable over Fukui.

Amended claim 9 sets forth a CVD apparatus including, among other features, a deposition chamber having a lid integral to a process chemical isolation mechanism such that the isolation mechanism would be incomplete, nonfunctional, or otherwise not able to isolate material delivery from reaching the chamber absent the lid. Applicant notes that fence 14 is not in any way related to isolation of feedstock in path 10 from being delivered into fence 14. Accordingly, claim 9 along with claims 10-14 and 38 depending therefrom are patentable over Fukui.

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Amended claim 15 sets forth a CVD apparatus including, among other features, a deposition chamber defined in part by a cylindrical body and a single-piece, removable lid having a thickness which is much less than a width of the lid and which is similar to a thickness of the chamber body, and a valve body including a portion of the lid as part of the valve body. Fence 14 of Fukui does not disclose the deposition chamber defined as in claim 15. Also, needle valve holder 7 and wave sprayer 1 do not include fence 14 as a part of a valve body. Accordingly, claim 15 along with claims 15-26 depending therefrom are patentable over Fukui.

Amended claim 27 set forth a CVD apparatus including, among other features, a deposition chamber having a lid and a body with similar thicknesses, the lid having an inner surface inside the chamber, an outer surface outside the chamber, and an opening completely through the lid thickness and defined by sidewalls forming a part of the lid and extending between the inner and outer surfaces. Regardless of the Office's allegation that the Fukui conduit holding hollow needle valve 6 discloses the claimed opening and that fence 14 discloses the claimed lid, the sidewalls of the conduit do not form a part of fence 14. Instead, the sidewalls form a part of needle valve holder 7. Accordingly, claim 27 along with claims 28, 29, and 40 depending therefrom are patentable over Fukui.

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Applicant herein establishes adequate reasons supporting patentability of claims 1-29, 37, 38, 40-44, and 46 and requests allowance of all such pending claims in the next Office Action.

Respectfully submitted,

Dated: 09 Jan 2006By: James E. Lake
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